

On yield surfaces for plastic shells

25284
P/033/60/012/001/003/008
D250/D302

$$\left\{ \begin{array}{l} (n_{11}^2 - n_{11}n_{22} + n_{22}^2) + (2n_{11}m_{11} + 2n_{22}m_{22} - n_{11}m_{22} - n_{22}m_{11}) + \\ \quad + (m_{11}^2 - m_{11}m_{22} + m_{22}^2) = 1 \\ (n_{11}^2 - n_{11}n_{22} + n_{22}^2) - (2n_{11}m_{11} + 2n_{22}m_{22} - n_{11}m_{22} - n_{22}m_{11}) + \\ \quad + (m_{11}^2 - m_{11}m_{22} + m_{22}^2) = 1 \end{array} \right\} = 1 < 1, \quad (5.1)$$

where $M_{\alpha\beta}$ and $n_{\alpha\beta}$ are dimensionless forces. The alternative cases given correspond to the sheets yielding together or separately. Two-dimensional representations are obtained from these by projections and intersections, and are given in tabulated form and by cyclic interchange of variables. Some of the curves obtained are also shown. The alternative results with Coulomb-Tresca conditions are further outlined. Some comments are made on a treatment of an anisotropic sandwich shell (Ref. 12: M. Sh. Mikeladze, Obshchaya teoriya anizotropnykh zhestko-plasticheskikh obolochek, General Theory of Anisotropic Rigid-Plastic Shells, Izv. AN SSSR, OTN, 1 (1957)85-94), pointing out that the postulate made there involves

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the intensity of stress "in the mean", rather than that at every point, becoming equal to the yield point. There are 11 figures, 4 tables and 24 references: 13 Soviet-bloc and 11 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: P. G. Hodge, Jr., Plastic Analysis of Structures, McGraw-Hill, New York, 1959; P. G. Hodge, Jr., Plastic Analysis of Rotationally Symmetric Shells, DOMITT Rep 1-6, Chicago 1959; R. T. Shield, D. C. Drucker, Limit Strength of Thin-Walled Pressure Vessels, Proc. 3rd U. S. Congr. Appl. Mech. (Providence 1958), 1958, 665-672; D. C. Drucker, R. T. Shield, Limit Analysis of Symmetrically Loaded Thin Shells of Revolution, J. Appl. Mech. 1, 26 (1959)

ASSOCIATION: Department of Mechanics of Continuous Media, IBTF
Polish Academy of Sciences

SUBMITTED: May 27, 1959

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24.4200

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26349
P/033/61/013/003/005/008
D287/D303

AUTHOR: Sawczuk, Antoni (Warsaw)

TITLE: On the theory of anisotropic plastic plates and shells

PERIODICAL: Archiwum mechaniki stosowanej, v. 13, no. 3, 1961,
355-365

TEXT: The author starts with a brief resumé of the history of the theory of plastically anisotropic structures and points out that the analysis so far has been limited either to particular forms of Hill's yield condition for orthotropic bodies, or to piece-wise linear approximations made in order to solve practical problems of limit analysis. In the present paper, an attempt is made to obtain yield surfaces for plates and shells made of rigid, plastically anisotropic material. General relations between stress and strain rates for anisotropic shells are studied and equations of the yield hypersurface in the space of stress resultants are given. Discussion of relations valid for sandwich structures is also presented. The influence of anisotropy on carrying capacities and deformation patterns of plates and shells is shown by means of examples. For Card 1/5

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the discussion of the basic relations the author defines A_{ijkl} ,
($i, j, k, l = 1, 2, 3$) as a matrix of plastic moduli, and assumes that
 A_{ijkl} transforms according to the fourth order tensor transformation
rule. He further postulates a flow rule in the following form

$$(2.1) \quad \dot{\epsilon}_{ij} = 2 \nu A_{ijkl} \sigma_{kl}$$

which represents the simplest relation between the strain rate tensor--
 $\dot{\epsilon}_{ij}$, the stress tensor-- σ_{ij} , and the tensor of plastic moduli--
 A_{ijkl} . During his discussion, the author states that a plastically
anisotropic body subjected to the flow rule of Eq. (2.1) is described by
21 moduli at most; he further concludes that an incompressible plastically
anisotropic body is described by 15 plastic moduli, and in the case of
plastic shells, 6 independent plastic moduli fully describe anisotropic
plastic properties of a shell. The author then mentions the Huber-Mises
yield criterion for an isotropic medium, and gives the following yield

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condition:

$$(2.8) \quad f = A_{\alpha\beta\gamma\delta} \sigma_{\alpha\beta} \sigma_{\gamma\delta} - (2A_{\alpha\beta\gamma\gamma} \sigma_{\alpha\beta} + A_{\alpha\alpha\beta\beta} \sigma_{\beta\beta}) \sigma_{\alpha\alpha} = c^2,$$

He mentions that a yield criterion for a material with anisotropic properties should be represented in an invariant form of stress and anisotropy tensors. In the case of a plastic orthotropic shell, the number of independent plastic moduli reduces to four. In the discussion of yield hypersurfaces, the author states that equilibrium equations of shells are generally written in terms of stress resultants (moments $M_{\alpha\beta}$, membrane forces $N_{\alpha\beta}$ and shear forces $Q_{\alpha\beta}$, $\alpha, \beta = 1, 2$).

Thus, in order to solve the plastic shell problem, the author represents the yield condition as a function of stress resultants or at least in terms of part of them, defined as generalized stresses. The first part of Eq. (2.8) gives a yield condition for shells in terms of stress components. The author points out that the influence of shear forces on the yielding of a shell element is disregarded. In his further discussion, the author states that the state of stress is uniquely determined by the

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D287/D3C3

On the theory of...

yield mechanism for the given plastic anisotropy, and that stress distribution depends on anisotropic properties of the material in question. He points out that equations of the yield condition for shells are simpler in the case of sandwich structures and discusses the particular case of a shell of thickness $2H$ and plastic sheets of thickness $T \ll H$. In his discussion of applications the author considers a simply supported circular plate of radius R loaded axially by a concentrated force P , and an identical plate loaded by a dimensionless couple m_0 distributed along the outer radius $\varphi = 1$. He states that anisotropy influences both the limit load and the velocity field. No direct transformation relations exist between solutions for isotropic and anisotropic plates. In general, the influence of anisotropy is more significant as far as magnitudes of displacement rate fields are concerned rather than the magnitude of limit loads. As an example of limit analysis of anisotropic shells, the author considers a long cylindrical shell of radius R , subjected to a ring of concentrated forces $2Q_0$. The author points out that the orientation of axes of anisotropy in a structure has an important influence. He

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states that application of an anisotropic material does not necessarily increase the limit load as compared to an isotropic structure. In a footnote, the author states that this paper was read during the X-th International Congress of Applied Mechanics, Stresa, September 1960. There are 18 references: 8 Soviet-bloc and 10 non-Soviet-bloc. The four most recent references to English-language publications read as follows: L. W. Hu, Modified Tresca's yield condition and associated flow rules for anisotropic materials, J. Franklin Instit, 265 (1958), 187-204; P. G. Hodge, Plastic analysis of structures, McGraw-Hill, New York 1959; P. G. Hodge, The Mises yield condition for rotationally symmetric shells, Quart. Appl. Math., 4, 18 (1960), 305-311; A. Sawczuk, P. G. Hodge, Comparison of yield conditions for circular cylindrical shells, J. Franklin Instit, 269 (1960), 362-374.

ASSOCIATION: Department of Mechanics of Continuous Media,
IBTP, Polish Academy of Sciences; Warsaw Technical
University

SUBMITTED: December 14, 1960

Card 5/5

SAWCZUK, Antoni; JANAS, Marek; ZAWIDZKI, Jerzy

Problems of the technological theory of limited load capacity of plates with mixed boundary conditions. Rozpr inz PAN 10 no.2:243-278 '62.

1. Zaklad Mechaniki Osrodkow Ciaglych, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

SAWCZUK, Antoni

Scientific symposia in the field of thin-walled coatings.
Nauka polska 10 no.3:118-119 My-Je '62.

1. Polskie Towarzystwo Mechaniki Teoretycznej i Stosowanej,
Warszawa.

CSONKA, P., prof. (Budapest); SAWCZUK, A. [translator]

Two specific types of coatings laid like membranes. Inz i bud
19 no.1:15-18 Ja '62.

SANKARANARAYANAN, R. (Bangalore); SAWCZUK, A. (Warsaw)

A note on the behavior of plastically anisotropic structures under blast loading. Archiw mech 14 no.5:797-809 '62.

1. Department of Mechanics of Continuous Media, Institute of Basic Technical Problems, Polish Academy of Sciences, Warsaw.

SAWCZUK, Antoni; KONIG, Jan Andrzej (Warszawa)

Destruction analysis of circular silos constructed of reinforced concrete. Archiw inż lad 8 no.2:161-183 '62.

SAWCZUK, Antoni; OLSZAK, Wacław

Problems of inelastic shells. Mechan teor stow 1 no. 1:
37-73 '63.

1. Department of Mechanics of Continuous Media, Institute of
Basic Technical Problems, Polish Academy of Sciences, Warsaw.

SAWCZUK, A.; WINNICKI, L. (Warszawa)

Plastic analysis of reinforced concrete plates in large deflections. Archiw inż lad 9 no. 4: 461-472 '63.

SAWCZUK, Antoni; DUZEK, Maria

A note on the interaction of shear and bending in plastic plates. Archiw mech 15 no. 3:411-426 '63.

1. Department of Mechanics of Continuous Media, Institute of Basic Technical Problems, Polish Academy of Sciences, Warsaw.

SAWCZUK, Antoni

Nonclassical problems of the theory of coatings; subject of the
Symposium in Warsaw, September 2-5, 1963. Nauka polska 12
no.2:237-240 '64.

1. Institute of Basic Technical Problems, Polish Academy of Sciences,
Warsaw.

SAWCZUK, A., Doctor of Engineering Sciences; KALISZKY, S.,
Candidate of Technical Sciences

On the limit analysis of plates supported by a nonhomogeneous
plastic subgrade under rotational symmetry conditions. Acta
techn Hung 48 no. 1/2:185-201 '64.

1. Institute for Fundamental Technical Problems of the Polish
Academy of Sciences, Warsaw (for Sawczuk). 2. Technical
University for Building and Transport Engineering, Budapest
(for Kaliszky).

SAWICKO, Z.

a new bridge in Breslau. p. 347.

INZYNIERIA I BUDOWNICTWO. Warszawa, Poland. Vol. 16, no. 8, Aug. 1959.

Monthly List of East European Accessions (SEAI) LC, Vol. 9, no. 2, Feb. 1960 .
Encl.

LABENDZINSKI, Franciszek; MARCINIAK, Maria; OWCZAREK, Lucjan; SAWICKA, Anna.

Three cases of plasma-cell leukemia observed simultaneously in 1 year. Pol. arch. med. wewnet. 33 no.12:1437-1442 '63.

1. Z III Oddziału Wewnętrznego Szpitala Miejskiego im. Strusia w Poznaniu (kierownik: prof. dr. med. F. Labendzinski); z III. Kliniki Chorób Wewnętrznych AM w Poznaniu (kierownik: prof. dr. med. K. Wysocki) i ze Szpitala Powiatowego w Jarocinie Poznańskim (ordynator: lek. med. J. Marciniak).

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L 6689-65 EWG(j)/EWG(r)/EWG(1)/A/FS(r)-3/EWG(r)/EWG(a)/EWG(c) Pg-5/Pack-1
AFWL/AFETR/AFMDC/SSD/ESD(c)/AMD DD

ACCESSION NR: AP4046514

P/0056/64/015/004/0495/0501

66
64

AUTHOR: Markiewicz, L. (Markivich, L.); Missiuro, W. (Missyuro, Vl.); Brzezinska, Z. (Bzhezinska, Z.); Sawicka, A. (Sawicka, A.)

TITLE: Biochemical and morphologic changes in brain tissue induced by vibration

SOURCE: Acta physiologica polonica, v. 15, no. 4, 1964, 495-501

TOPIC TAGS: vibration, nervous system, mediator, brain, frequency, nerve structural change

ABSTRACT: The effect of vibration on the functional state of the central nervous system was studied. Experiments were carried out on the behavior of mediators of the nervous system, noradrenaline and acetylcholine, in the brains of rats subjected to vibration of frequency 50 and 75 Hz, four hours each day during one week. An increase in both mediators was observed. The highest values of noradrenaline were found four hours after single exposition to vibration. The increase at that time was 111% of normal at frequency 50 Hz, and 116% at frequency 75 Hz. After several days exposure to vibration the high levels of acetylcholine diminished, but were still 55-58% above normal. The content of noradrenaline was also elevated, parallel to increasing time of exposure to vibration. After 6 days'

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ACCESSION NR: AP4046514

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exposure the values were 100% higher at frequency 50 Hz, and 32% at frequency 75 Hz. Histologic examination of the brains revealed disappearance of tigroid in the cytoplasm of the nerve cells, especially in the hypothalamus. As may be seen from the experimental findings, vibration of this intensity induces changes in the structure of the nerve cells and increases the levels of the adrenergic and cholinergic mediators. Even brief vibration probably is not without effect on the body.

ASSOCIATION: Zaklad Fizjologii i Higieny Pracy CIOP, Warsaw (Institute of Physiology and Hygiene CIOP); Zaklad Fizjologii Pracy PAN, Warsaw (Institute of Physiology of the Polish Academy of Sciences)

SUBMITTED: 28Feb64

ENCL: 00

SUB CODE: LS

NO REF SOV: 001

OTHER: 010

Card 2/2

NERUS, Robert, JACZYNSKI, Janina

Aspergilloma of the kidney. Pol. tyg. lek. 19 no.8:308-310
17 Feb. 1964.

1. Z Kliniki Chirurgicznej Akademii Medycznej w Krakowie (kierownik: prof. dr. Jozef Bogusz) i z Zakladu Anatomii Patologicznej Akademii Medycznej (kierownik: prof. dr. Janina Kowalczykowa).

L 47751-65 EWG(j)/EWG(r)/EWT(1)/FS(v)-3/EWG(v)/EWG(a)-2/EWG(c) Pe-5 DD

ACCESSION NR: AP5013216

PO/0056/65/016/002/0207/0217 ³⁰

AUTHOR: Lubanska-Tomazewska, L. (Lyubanska-Tomashevsk, L.); Missiuro, W. (Mis-³⁰
syuro, V.) (Professor, Doctor, Director); Sawicka, A. (Savitska, A.)

TITLE: The effect of vibration on the histochemistry of adrenal and cerebral tissues

SOURCE: Acta physiologica polonica, v. 16, no. 2, 1965, 207-217

TOPIC TAGS: vibration, biological effect, histochemistry, adrenal gland, brain

ABSTRACT: The effect of vibration on the histochemistry of the adrenal and cerebral tissues was studied as a function of the noradrenaline, adrenaline, and ascorbic acid content in these organs. Rats were exposed to vibration at a frequency of 50 cps with an amplitude of 0.1 mm for 4 hr daily over a period of 6 days. Vibration increased the noradrenaline content while decreasing the adrenaline content of cerebral and adrenal tissues. It also increased the ascorbic-acid content of cerebral tissues but lowered its content in adrenal glands. A histological examination of cerebral tissues revealed that vibration over a period of several days led to distinct chromatolysis. Foci of cellular exhaustion characterized by the absence of lipid bodies were observed in the zona fasciculata and zona reticularis of the adrenal glands. Orig. art. has: 6 figures. [CD]

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L 47751-65

ACCESSION NR: AP5013216

ASSOCIATION: Zaklad Fizjologii Pracy PAN, Warsaw (Laboratory of Industrial Physiology, PAN); Zaklad Fizjologii i Higieny Pracy CIOP, Warsaw (Laboratory of Industrial Physiology and Hygiene, CIOP)

SUBMITTED: 10Nov64

ENCL: 00

SUB CODE: LS

NO REF SOV: 005

OTHER: 018

AID PRESS: 4004

Card 2/2

TRYBULA, Eugeniusz, mgr inż.; SAWICKA, Elzbieta, inż.

Properties of cooling compressor oils operating with Freon
12. Nafta Pol 20 no.6:156-159 Je'64.

1. Institute of Petroleum Technology, Warsaw Branch.

SAWICKA, Elzbieta

SAWICKA, Elzbieta (Warszawa, Litowska 16)

Typhoid and paratyphoid fevers in infants. *Pediat. polska*
29 no.4:377-380 Ap '54.

1. Z I Kliniki Chorob Dzieci Akademii Medycznej w Warszawie.

Kierownik: prof. dr med. R. Baranski.

(TYPHOID FEVER, in infant and child,)

*

(PARATYPHOID FEVERS, in infant and child,)

*

SAWICKA, Elzbieta

SAWICKA, Elzbieta (Warszawa, Litowska 16)

Symptomatology of typhoid fever in children. *Pediat. polska*
29 no.4:381-384 Ap '54.

1. Z I Kliniki Chorob Dzieci Akademii Medycznej w Warszawie.
Kierownik: prof. dr med. R.Baranski.
(TYPHOID FEVER, in infant and child,
*manifest.)

ANDRZEJEWSKA, E.: CHOJNACKA, I. SAWICKA E,

Auto-antibodies in hemolytic anemia. Pediatr. polska 30 no.6:521-530
Je '55.

1. Z Oddziału Dziecięcego Szpitala Centralnego M.S.W. w Warszawie
Kierownik Oddziału: doc. dr Med. A. Zakrzewska Z Działu Serologii
Instytutu Hematologii w Warszawie. Dyrektor Instytutu: doc. dr
med. A Trojanowski, Kierownik: działu: prof. dr med. I Lille-
Szyszkowicz; Z I Kliniki Chorob Dziecięcycy A.M. W Warszawie,
Kierownik: prof. dr med. R. Baranski. dr I. Chojnacka, Warszawa,
Chocimska 5, Instytut. Hematologii-Dział Serologii.

(ANEMIA, HEMOLYTIC, immunology,
auto-antibodies)

(ANTIGENS AND ANTIBODIES,
hemolytic anemia auto-antibodies)

BEREK, Barbara; BOGUMIL, Maria; SAWICKA, Elzbieta

A case of Niemann-Pick disease in a 4-month-old infant. *Pediat. polska* 35 no.2:216-221 F '60.

1. Z I Kliniki Chorob Dzieci A.M. w Warszawie. Kierownik: prof. dr.med. R. Baranski i z Zakladu Anatomii Patologicznej A.M. w Warszawie. Kierownik: prof.dr.med. L. Paszkiewicz.
(LIPOIDOSIS in inf.& child.)

POLAND/Cultivated Plants - Grains.

Abs Jour : Ref Zhur - Biol., No 10, 1956, 114042

Author : Listowski, A., Czarnowski, J., Kaczorkowa, S., Sawicka, G.

Inst : The Institute for Privately Operated Agriculture of the Chief Agricultural School.

Title : Reaction to the Soil Dryness of the Spring Wheat, Spring Barley and Oat Varieties Cultivated in Poland.

Orig Pub : Roczn. nauk rolniczych, 1956, 172, No 3, 373-421.

Abstract : Experiments were conducted at the Institute of Private Agriculture of the Main Agricultural School during vegetation trials on the podzolic soil with a total moisture capacity of 36%. Plants subjected to soil dryness for 14 days prior to spiking were compared. The effect of continuous drought was weaker than that of 2-week duration.

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ANDREASID, Zbigniew; SAWICKA, Halina

~~AN UNUSUAL CASE OF EOSINOPHILIA IN BRONCHIAL ASTHMA~~
An unusual case of eosinophilia in bronchial asthma. Polski tygod.
lek. 10 no.17:558-561 25 Apr 55.

1. Z II Kliniki Chorob Wewnetrznych Akademii Medycznej we Wroclawiu,
kierownik: prof. dr Antoni Falkiewicz. Wroclaw II Klin. Chor. Wewn.
A. M. ul. Pasteura 4.
(ASTHMA, complacations,
eosinophilia,
(EOSINOPHILIA, in various diseases,
asthma)

ANDREASIK, Zbigniew; SAWICKA, Halina

Case of eosinophilic endocarditis. Polski tygod. lek. 11 no.11:
502-505 12 Mar 56.

1. Z II Kliniki Chorob Wewnętrznych A.M. we Wrocławiu; kier.:
prof. dr. med. Antoni Falkiewicz. Wrocław, ul. Pasteura 4.
(ENDOCARDITIS, complications,
eosinophilia (Pol))
(EOSINOPHILIA, complications,
endocarditis (Pol))

SAWICKA, Janina

POLAND/Chemical Technology - Chemical Products and Their
Application. Food Industry

I-28

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13968

Author : Sawicka Janina

Title : Experience with the Use of Pure Cultures in the
Manufacture of "Brynza" Cheese from Sheep Milk

Orig Pub : Przem. spozywczy, 1955, 9, No 10, 418-421

Abstract : Description of the results of microbiological, organo-
leptic and chemical investigations of the semifinished
product and of the finished cheese. Use of pure cultu-
res in conjunction with raw as well as with pasteurized
milk improves the quality. Best combination of cultu-
res is a mixture of Streptococcus lactis and Lactobadil-
lus helveticus.

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SAWICKA, J.

TECHNOLOGY

Periodicals: PRZEMYSŁ SPOŻYWCZY. Vol. 12, no. 9, Sept. 1958

SAWICKA, J. The value of organoleptic laboratory diagnosis of some changes in eggs preserved in paraffin. p. 372.

Monthly List of East European Accessions (EEAI) LC Vol. 8, No. 2,
February 1959, Unclass.

POLAND / Pharmacology and Toxicology. Medicinal Plants.

V-8

Abs Jour : Ref. Zhur - Biologiya, No 17, 1958, No. 80641

Author : Sawicka, Maria

Irst : Not given

Title : Nepeta Cateria And Other Types; Acclimatization And
Comparative Physical-Chemical Analysis of Oils

Orig Pub : Dissert. pharmac. PAN, 1956, 8, No 3, 231-232

Abstract : In 1954-1955, investigations were conducted on the content of oils in annual and perennial plants p. Nepeta. It was discovered that N. Missini Hank. contains the greatest quantity of ether oils (0.5% by volume). The smallest content was found in N. raphanorrhizza Benth. subspecies albiflora Janchen.

Card 1/1

SAWICKA-MIELNIK, Irena

Results of surgical therapy of blepharoptosis using the
Friedwald-Guyton method. Klin. oczna 35 no.3:485-487 '65.

1. Z Kliniki Ocznej AM w Gdansk (Kierownik: doc. dr. med.
J. Morawiecki).

POL/46-4-2-10/12

21(1), 28(1)

AUTHOR: Kosacki, J.S., and Sawicki, A.

TITLE: 144-Channel Neutron Time-of-Flight Analyzer Designed to Work with a Mechanical Selector

PERIODICAL: Nukleonika, 1959, Vol 4, Nr 2, pp 221-225 (Poland)

ABSTRACT: A description of the equipment with block-diagram (Fig. 1) of the 144-channel neutron time-of-flight analyzer is given. Furthermore the equipment is illustrated with and without case (Fig. 2, 3, and 4). The range of application is outlined in brief. Extract of technical specifications: 1) and 2) number of channels; 3) width of channel of analyzer; 4) stability of width of channel; 5) impulse starting, amplitude, continuance of time, polarization; 6) retarding change of starting impulse; 7) analysis impulse, amplitude, continuance of time, polarization; 8) efficiency of separation of channel; 9) register of analyzer channel; 10) working conditions; 11) size. There are 3 photographs and 1 diagram. ✓

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POL/46-4-2-10/12

144-Channel Neutron Time-of-Flight Analyzer Designed to Work with a Mechanical Selector

ASSOCIATION: Instytut badan jadowych PAN, Warszawa, zaklad elektroniki (Department of Nuclear Research PAN, Warszawa, Institute for Electronics)

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POL/46-4-5-8/16

21(3)

AUTHOR:

Sawicki, Aleksander

TITLE:

100-Channel Impulse Time of Flight Analyzer Operating in Conjunction with a Mechanical Selector for Slow Neutrons

PERIODICAL: Nukleonika, 1959, vol 4, Nr 5, pp 567-571 (POLAND)

ABSTRACT:

The piece of apparatus described serves to segregate impulses obtained from neutron detectors, according to the times of flight of the neutrons let through to the detectors by the selector. The impulses obtained from the detectors are grouped according to their respective times in 100 channels with adjustable widths of 5, 10, 20, 40 and 80 μ sec. The impulses grouped in each channel are registered by telephone-type numerators. Since the time of flight of neutrons over one metre depends on their energy, the analyzer may also be used to measure the energy repartition of the neutrons, according to the equation: $t = 72.3 E^{1/2}$. The analyzer's block scheme is shown in Fig 1. In Figs 2 and 4, the analyzer is shown from the front with its panels closed and open respectively, while Fig 3 shows the analyzer from the rear with all pa-

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100-Channel Impulse Time of Flight Analyzer Operating in Con-
junction with a Mechanical Selector for Slow Neutrons

nels taken down. The apparatus contains 266 lamps and is mounted on 26 panels. The following are some of its technical data: stability of channel width - 0.1%; starting impulse - amplitude over 2V, duration more than 3 μ sec, positive polarization; analyzed impulse - amplitude 4 to 200 mV, duration more than 0.2 μ sec, negative polarisation; channel's distributing speed - 20 calculations per sec; channel's capacity - 9,999 calculations; power supply - 3x 380 V ($\pm$ 10%), 50 Hz, 2.5 KW. There are 1 diagram and 3 photographs.

ASSOCIATION: Instytut badań jądrowych PAN, Warszawa, zakład elektroniki stosowanej (Nuclear Research Institute of the Polish Academy of Sciences, Warsaw, Applied Electronics Division).

Card 2/2

ACCESSION NR: AP4015839

P/0046/63/008/010/0695/0707

AUTHOR: Hoffman, Zbigniew (Goffman, Z.); Komor, Zenon; Sawicki, Aleksander
(Savitski, A.)

TITLE: A 256-channel time-of-flight analyzer of pulses with magnetic memory

SOURCE: Nukleonika, v. 8, no. 10, 1963, 695-707

TOPIC TAGS: time-of-flight analyzer, magnetic memory, arithmetic unit, digital to analog conversion, read-out, print-out, automatic print-out, monostable trigger, bistable trigger, self-blocking oscillator, pulse coincidence, square wave ferrite core, magnetic state, counting, checking, oscilloscope, decade read-out, block, gate, address register, cancel, selector, electronic selector, delay line, coordinate gate

ABSTRACT: A 256-channel analyzer is described which segregates pulses according to the time elapsed from instant zero to the instant at which they are recorded. This device is equipped with a magnetic memory, which makes it possible to perform also an amplitude analysis. The design was developed by a group of engineers and technicians at the Zaklad Elektroniki Instytutu Badan' Jadrowych

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ACCESSION NR: AP4015839

(Department of Electronics at the Institute of Nuclear Research) in Warsaw. The main function for which the apparatus is programmed -- the time-of-flight analysis -- is performed by a magnetic memory and associated circuitry. The memory is of the coincidence type and consists of 16 plates with 16 x-coordinate windings and 16 y-coordinate windings. At the 256 intersections on each plate there are cores, each with additional two windings: one for signal and one for blocking. Three current pulses, "read", "print" and "block" are transmitted to the x- and y-coordinate windings; only a coincidence of currents in both coordinates changes the state of magnetism in square-wave ferrite cores. Such coincidence occurs only in the cores located at the intersection of those coordinates. The reading and printing operations require only 16 microseconds. The pulse to be analyzed actuates a set of gates and a self-blocking oscillator GS 2, which in turn prepares the arithmetic unit for receiving information. This oscillator also generates a pulse which goes into the delay line and from there successively into five separate circuits: 1) a monostable trigger circuit; 2) another self-blocking oscillator GS+1 which, together with the trigger circuit, opens the gates of the arithmetic unit; 3) a second monostable trigger which generates the negative pulse "block"; 4) a positive pulse "print" is generated simultaneously, which combined with negative "block" pulse allows new information to pass from the

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ACCESSION NR: AP4015839

arithmetic unit into the memory; 5) a third self-blocking oscillator GS3 which, before 16 microseconds is up, is triggered and will correct the state of the address register and of the electronic selector 1, reopens gate 1 and the input gate. These are only the major components of the analyzer and the entire sequence of time-of-flight analysis proceeds by way of additional gating and switching. The device is designed and built so as to be able to carry out 6 other programs of operation. These are auxiliary programs which are initiated by selector switching at the front panel. They are: 1) checking, 2) oscilloscope, 3) decade read-out, 4) analog print-out, 5) supplementing, i.e. converting the actual counts of all channels into their supplements to the full channel capacity, and finally, 6) automatic print-out consisting of two stages, the preparation of analyzer data and actual print-out on the press; the latter operation requires command mechanisms for "start printing" and "stop printing" also automatic switch off after the entire contents of all 256 channels has been printed out. The Original article contains 9 diagrams.

ASSOCIATION: Instytut Badan Jadrowych, Zaklad Elektroniki, Warsaw
(Department of Electronics, Nuclear Research Institute)

Card 3/103 Sub: 20 Jun 63

P/0022/64/000/003/0065/0071

ACCESSION NR: AP4022339

AUTHOR: Hoffman, Zbigniew (Master engineer); Sawicki, Aleksander (Master engineer)

TITLE: High speed multichannel pulse time distribution analyzer with magnetic memory

SOURCE: Przegląd telekomunikacyjny, no. 3, 1964, 65-71

TOPIC TAGS: time distribution analyzer, magnetic memory, multichannel analyzer, computer memory, computer, analyzer, high speed analyzer, multichannel time distribution analyzer, neutron time-of-flight

ABSTRACT: The operational basis and description are given for a 256 channel pulse time distribution analyzer. The device is built on the basis of calculating machine digital techniques and has a series of units: magnetic memory, address register, arithmetic system and printout. The device is intended for measurement of the time-of-flight of neutrons. Orig. art. has: 9 figures.

ASSOCIATION: none

Card 1/2

P/0022/64/000/005/0153/0154

ACCESSION NR: AP4039545

AUTHOR: Sawicki, Aleksander (Master engineer)

TITLE: Pulsed current generator

SOURCE: Przegląd telekomunikacyjny, no. 5, 1964, 153-154

TOPIC TAGS: pulse current generator, current generator, thyatron, hot-cathode gas tube, delay network, electric measuring instrument

ABSTRACT: The operating principles of a pulse generator, providing for a high degree of control of the pulse amplitude and width, are described. This generator was developed in the Central Laboratory for Measuring Instruments and Optics in Warsaw. The generator is intended for producing high current pulses which can be regulated with respect to amplitude, duration and repetition frequency. The amplitude can be regulated within the limits 0.1 to 1 amp with a regulating accuracy of 1%. The pulse duration is from 0.5 to 50 milliseconds with an accuracy of 5%. A block diagram of this current generator is shown in Figure 1 of the Enclosure. The discrete pulse generator, which is manually controlled, generates a pulse with a small build-up time. This pulse is then directed to the current generator and

Card 1/3

ACCESSION NR: AP4039545

delay network. The current generator is blocked in the initial stage, i.e. there is no flow of current. When a voltage pulse of the requisite amplitude appears at its input, the generator starts to conduct current. The magnitude of this current can be regulated. The impulse triggering the current generator also actuates the delay network at the same time. This network delays the pulse from 0.5 to 50 milliseconds. The delayed pulse is then directed to the current generator switch-off system which effects an immediate breaking of the current in the pulse current generator. Original article has: 2 Figures.

ASSOCIATION: Instytut Badan Jadrowych Zaklad Elektroniki (Institute of Nuclear Research Department of Electronics)

SUBMITTED: 00

DATE ACQ: 18Jun64

ENCL: 01

SUB CODE: EC, EE

NO REF SOV: 000

OTHER: 003

Card 2/3

ACCESSION NR: AP4039545

ENCLOSURE: 01

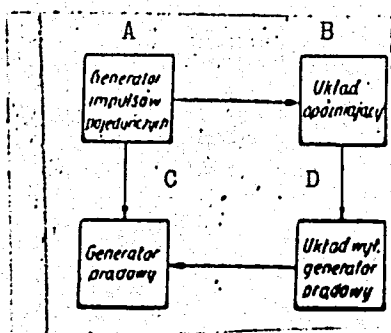


Figure 1: Block diagram of current generator A - discrete pulse generator; B - delay network; C - current generator; D - current generator switch-off system

Card 3/3

BORON, F.; BIELAWIEC M.; SAWICKI, A.

2 Cases of plasmocytic reticuloma treated with ACTH & urethane. Polski tygod. lek. 13 no.29:1125-1127 21 July 58.

1. Z I Kliniki Chorob Wewnetrznych A.M. w Bialymstoku: kierownik: prof. dr Marian Tulczynski.

(MYELOMA, PLASMA CELL, ther.

ACTH & urethane (Pol))

(ACTH, ther. use

plasma cell myeloma, with urethane (Pol))

(URETHANE, ther. use

plasma cell myeloma, with ACTH (Pol))

SAWICKI, A.

Determination of blood glucosamine level in certain vascular diseases.
Polskie arch.med. wewn. 28 no.5:705-706 1958.

1. Z I Kliniki Chorob Wewnętrznych A.M. w Białymstoku. Kierownik:
prof. dr med. A. Tulczyński.

(GLUCOSAMINE, in blood
in arteriosclerosis & thromboangiitis obliterans (Pol))
(ARTERIOSCLEROSIS OBLITERANS, blood in.
glucosamine (Pol))
(THROMBOANGIITIS OBLITERANS, blood in
same (Pol))

SAWICKI, A leksander

SURNAME, Given Names

Country: Poland

Academic Degrees: [none given]

Affiliation: [not given]

Source: Warsaw, Medycyna Weterynaryjna, Vol XVII, No 8, August 1961, p 468.

Data: "Field Observations on the Role of the Vaccine for the Control of
Foot and Mouth Disease Type C."

GPO 981643

SOKOLOWSKA-PITUCHOWA, Jolina; SADOWSKA, Aurelia; SADOWSKI, Bohdan

Developmental disorders of the respiratory system. Ist. pol. 15
no.2:177-188 Apr-Je '64

1. Z Zakładu Anatomii Opłucnej i Topograficznej Akademii Medycznej
w Krakowie (Kierownik: doc. dr. med. J. Sokolowska-Pituchowa) i
z Zakładu Anatomii Patologicznej Akademii Medycznej w Krakowie
(Kierownik: prof. dr. med. J. Kowalczykówna).

BOGDANIKOWA, Beata, doc. dr.; SAWICKI, Andrzej

On favorable effects of methandrostenolone in diabetes insipidus.
Pol. arch. med. wewnet. 34 no.12:1533-1538 '64.

1. Z I Kliniki Chorob Wewnętrznych Akademii Medycznej w Białym-
stoku (Kierownik: doc. dr. B. Bogdanikowa).

L 14669-66

ACC NR: AP6008149

SOURCE CODE: PO/0046/65/010/008/0493/0502

AUTHOR: Sawicki, Aleksander—Savitski, A.

ORG: Department of Electronics, Institute of Nuclear Research, Swierk (Zaklad Elektroniki, Instytut Badan Jadrowych)

TITLE: Fast universal diode-transistor logic circuit and some of its uses

SOURCE: Nukleonika, v. 10, no. 8, 1965, 493-502

TOPIC TAGS: logic circuit, circuit design, semiconductor device, transistorized circuit, direct current

ABSTRACT: The performance of a universal logic circuit is discussed and the principle of its design is given. This circuit has many advantages of direct-current transistor logic circuits and enables the use of transistors unsuitable for the direct coupling technique. Some uses of this circuit are also given. Orig. art. has 11 figures and 11 formulas. [NA]

SUB CODE: 09 / SUBM DATE: 02Dec64 / OTH REF: 004

Card 1/1 *SC*

2

SOKOLCHSKA-PITUCHOWA, Janina; SOKOLCHSKA, Aurelia; SOKOLCHSKA, Barbara

Developmental disorders of the respiratory system. Int. Jot. 15
no.2:177-188 Apr-Je '64

1. z Zakładu Anatomii Opisowej i Topograficznej Akademii Medycznej
w Krakowie (Kierownik: doc. dr. med. J. Sokolowska-Pituchowa) i
z Zakładu Anatomii Patologicznej Akademii Medycznej w Krakowie
(Kierownik: prof. dr. med. J. Kowalczykowska).

SOKOLEWSKA-PITUCHOWA, J.; KOWALCZYKOWA, J.; KUS, J.; PIOTROWSKI, J.
SAWICKI, E.

Teratogenic effect of malachite green in experimental animals.
Preliminary report. Fol. biol. (Krakow) 13 no.3:311-315 '65.

1. Department of Descriptive and Topographical Anatomy, Medical
Academy, Krakow and Department of Pathological Anatomy, Medical
Academy, Krakow.

SAWICKI F.

22. Inventiveness in petroleum industry. F. Sawicki. *Nafta*
(*Krakow*), 1954, 10, 193-3.—Covers an improved knife for
cutting steel pipes inside wells, a float for high pressure vessels,
and use of asphalt for insulating water pipes. M. S.

FU 1

SAWICKI, Feliks

Tetanus in Poland in 1956-1961 as an occupational disease. Przegl. epidem. 18 no.1:71-76 '64.

1. Z Zakladu Epidemiologii Panstwowego Zakladu Higieny (Kierownik: prof. dr. J. Kostrzewski).

POLAND

SAWICKI, F. and BONIECKA, T., of the Epidemiology Department, State Hygiene Establishment (Zaklad Epidemiologii Panstwowego Zakladu Higieny) Prof. Dr. J. Kostrzewski, Head, Warsaw City Sanitary - Epidemiological Station (Miejaska Stacja Sanitarno-Epidemiologiczna dla m.) Dr. J. Letki, Head,

"Occupational Diseases and Poisonings in Warsaw in 1962 and 1963. An Epidemiologic Analysis"

Warsaw, Przeglad Epidemiologiczny, Vol 20, No 3, 1966, pp 240-247.

Abstract: The paper analyses occupational diseases and poisonings in Warsaw for the years 1962-63 on the basis of 446 reports. Prevalent types of occupational diseases and poisonings are broken down by industry type, age and sex of workers. Comparisons with other parts of Poland are made. Contains a summary in English, 1 Table and 6 Figures. No references.

SAWICKI, J.

Journal of the Science of
Food and Agriculture
April 1954
Agriculture and Horticulture.

①
Structure of the aleurone layer in varieties of cultivated barley
Hordeum sativum, J. Sawicki (*Prace roln. leine*, 1953, No. 66,
60 pp.).—The aleurone layer of 103 varieties of the barley were
studied over a period of several years. The mean no. of cell rows
in the aleurone layer of different varieties was found to vary from
1.64 to 3.11 and the mean thickness of the layer from 49.94 to
110.16 μ . Statistical analysis of variance performed with 40 varieties
showed that the differences between the varieties were responsible
for 93.00% of the total variation in the no. of the cell rows; seasonal
differences accounted for 0.60% and the environmental changes for
6.40% of the total variation. Due to small individual (within the
same variety) and seasonal variation the mean no. of cell rows and
mean thickness of the aleurone layer can be regarded as constant
characteristics of a given variety and employed in the classification
of barleys. S. LACHOWICZ.

REF ZHUR : BIOLOGIYA, NO. 4, 1959, No. 15600

AUTHOR : Sawicki, J.
INST. : Higher School of Agriculture, Krakow

TITLE Methods of Crossing Barley.
ORIG. PUB. : Acta agrobot., 1957, 6, 35-58

ABSTRACT

At the Higher School of Agriculture's (Krakow) Institute of Plant Cultivation and Seed Raising barley crossings were made with the object of comparing the results of tripping the flower by the Chermak method (I) (artificial pollination by cutting to $\frac{1}{2}$ the top of the exterior and interior flower palea) and the Bonnet method (II) (lengthwise section with subsequent drawing out of anther through a slot for pollination). The crossing of

CARD: 1/2

COUNTRY :
CATEGORY : CULTIVATED PLANTS.
ABS. JOUR. : REF ZHUR . BIOLOGIYA, NO. 4, 1959; NO. 15/00
AUTHOR :
INST. :
TITLE :
ORIG. PUB. :

ABSTRACT : bifarious and hexafarious barley by method II gave better results than method I. Method I is simpler and swifter, but it yields a lesser % of successful pollination, less realized grain, and in unfavorable conditions fails. Method II is more laborious, but closer to the state of natural pollination. Bibliography 18 titles.

-- I.I.Neznanskaya

CARD: : 2/2

SAWICKI, J.

Sensitivity and proper selection of elements of the Wheatstone deviation bridge. Archiw elektrotech 13 no.2:459-476 '61.

1. Department of Electric Measurements, Technical University, Gdansk. Submitted November 25, 1963.

SAWICKI, J.

"Magnetic Field of a Magnetic Dipole Located on the Earth's Surface." P. 97
(ACTA GEOPHYSICA POLONICA, Vol. 2, No. 2, 1954, Warszawa, Poland.)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3,
No. 12, Dec. 1954, Uncl.

BAKICHI, J.

Polish portable triangulation towers.

I. 8 (INTERNAL SECURITY) Poland, Vol. 13, No. 1, Jan. 1957

See: Monthly Index of East European Accessions (MEEI) Vol. 6, No. 11, November 1957

SAWICKI, J.

Properties of the unbalanced Wheatstone bridge. Archiw elektrotech
10 no.11:175-187 '61.

1. Wyższa Szkoła Marynarki Wojennej, Gdynia.

SAWICKI, J.

The textile industry is dominating in the city of Lodz. Przegl
techn no.51:7 21 D '60.

SAWICKI, J.

Modification of the Carey-Foster bridge. Rozpr elektrotech 8
no.3/4 '62.

1. Katedra Miernictwa Elektrycznego, Politechnika, Gdansk.

SAWICKI, J.

Activities of the branch of the Chief Technical Organization in the Marchlewski Cotton Plants in Lodz means: initiative, progress, new techniques. Przegl techn 84 no.14;6 7 Ap '63.

SAWICKI, J.

Activities good to be followed; the shop committee cooperates closely with the plant branch of the Association of Engineers and Technicians of the Chemical Industry. Przegl techn 84 no.21:4 26 May '63.

SAWICKI, J.

Linear approximation of the measuring characteristics of a bridge out of alignment. Archiw elektrotech 12 no.2:265-285 '63.

1. Katedra Miernictwa Elektrycznego, Politechnika, Gdansk.

SAWICKI, Jerzy, dr n.t.; REFEROWSKI, Ludwik, mgr inż.

Adjusting the current ration meter to measurements in various
resistance ranges. Pomiar 9 No. 12:634-636 D '63.

SAWICKI, JERZY
P/O L.

The deuteron polarizability and its effect on the Rutherford scattering. Jerzy Sawicki (Inst. Theoret. Phys., Warsaw). *Acta Phys. Pol.* 13, 225-8 (1954). The polarization energy correction, derived classically by Malenka, et al. (C.A. 47, 12013), is obtained by using the French-Goldberger equation and Kirkwood's variational method: $\alpha \approx 0.32 \times 10^{-24}$ cc. (Hulthén function), $\alpha \approx 0.21 \times 10^{-24}$ cc. (Wilson function). The lower limits of $\delta = (d\sigma/d\sigma_0) - 1$ are calcd.; the ratio of the scattering amplitudes $\Delta = f(\theta)/f(\theta_0)$ is small for small scattering angles θ and zero for $\theta = 0$. The approximated form of Δ for large Z and θ is obtained for the 2 cases of $n = 2\pi Ze^2/\hbar v \leq 2.5$. In both cases Δ depends weakly on n , $\delta \approx -0.174\%$ for $\theta = 180^\circ$; $\delta \approx -0.172\%$ for $\theta = 140^\circ$, with $Z = 92$, $n = 2$, and $\alpha = 0.32 \times 10^{-24}$ cc.; with $n = 0.3$ (10 m.e.v.) and $\theta = 180^\circ$, $\delta \approx 0.09\%$, or $\delta \approx -0.15\%$ with the α value of M., et al., resp. The $(-\delta)$'s are much smaller than those obtained by the classical approach because of the approximations used.

Walter G. Rothschild

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J. SAWICKI

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POL. 8

✓ Coulomb effects in the $Li^6(n,\alpha)H^3$ and $Li^7(p,\alpha)He^3$ reactions. J. Sawicki (Univ. Warsaw). *Nuovo cimento* 1, 057-9 (1958) (in English).--Math. Because of the Coulomb effect of the incoming proton wave the cross section for 0-m.e.v. protons of $Li^7(p,\alpha)He^3$ is several times smaller than that for $Li^6(n,\alpha)H^3$.
J. B. Austin

Amc LSH

SAWICKI, J.

539.172.4
7373. Note on the $Li(\alpha, d)He$ reaction. J. DABROWSKI AND J. SAWICKI, *Bull. Acad. Polon. Sci. Cl. 3, 3, No. 2, 51-4 (1955)*.
The differential cross-section is calculated with the assumption that the Li^6 nucleus consists of a deuteron moving in the field of an α -particle. The incoming neutron "knocks out" the deuteron and is itself captured. The $n-\alpha$ interaction is largely ignored, and "pick-up" is neglected because the deuteron is treated as an elementary particle. Nevertheless fair agreement with experiment is obtained. J. M. CARMELIS

RMZ JH

Sawicki, J.
539.172.13
1580. NOTE ON COULOMB EFFECTS IN STRIPPING
REACTIONS. J. Sawicki.
Bull. Acad. Polon. Sci. Cl. 3, Vol. 3, No. 6, 313-19 (1955).
For deuteron stripping where the neutron is captured into
the S-state in the approximation of zero-range n-p interaction
and for an independent particle model of the nucleus, Coulomb
effects may be included analytically. Effects are also con-
sidered for the $Li^6(n, \alpha) H^3$ reaction.
G.E. Brown

SAWICKI, J.

500-Rm

1582

PROTON POLARIZATION IN (n,p) REACTIONS AND
NUCLEAR OPTICAL MODEL. J. Sawicki (Univ. of
Warsaw). Nuovo cimento (10) 2, 1958-5(1955) Dec. (In
English)
The theory of proton polarization in nuclear reactions is
briefly discussed. (B.J.H.)

MW
82

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539.172.13

9910. Disintegration of the Be^9 -nucleus in Coulomb field. J. SAWICKI. *Acta phys. Polon.*, 14, No. 1-2, 135-47 (1955).

The cross-section for the disintegration ($\text{Be}^9 \rightarrow \text{Be}^8 + n$) of high-velocity Be^9 nuclei by heavy nuclei ($Z \gg 1$) and the disintegration of Be^9 nuclei by high-velocity protons is calculated by Dancoff's method. Attention is centred on those processes in which there is no direct nuclear collision and where the disintegration is due to electric forces. The cross-section σ for 170 MeV Be^9 nuclei is of the order $4 \cdot 2 \times 10^{-22} Z^2 \text{ cm}^2$ and $3 \cdot 5 \times 10^{-22} Z^2 \text{ cm}^2$ for 265 MeV Be^9 nuclei. For 18.8 MeV protons $\sigma \approx 4 \cdot 75 \cdot 10^{-22} \text{ cm}^2$ and for 29.14 MeV protons $\sigma \approx 4 \cdot 1 \times 10^{-22} \text{ cm}^2$. Quantitatively this process seems usually to be less important than the disintegration involving a direct nuclear collision.

A.

SAWICKI, J.

RML

339.172.13
 9911. Angular distribution of deuterons from
 $\text{Be}^8(p, d)\text{Be}^8$. L. J. DABROWSKI AND J. SAWICKI.
Acta phys. Polon., 14, No. 1-2, 143-7 (1955).
 The pickup process $\text{Be}^8(p, d)\text{Be}^8$ is investigated.
 The differential cross-section is calculated with use
 of Born's approximation. Contrary to the simplifying
 assumptions used by Bhutta *et al.* the exact wave-
 functions of beryllium are used in the calculations
 under the assumption of the nuclear shell model of
 the Be^8 nucleus. A formula available for numerical
 calculations is obtained.

RML

①

✓ 6892. 539.172.13
ANGULAR DISTRIBUTION OF DEUTERONS FROM
 $\text{Be}^9(p, d)\text{Be}^8$. II. J. Dabrowski and J. Sawicki.
Acta phys. Polon., Vol. 14, No. 5, 407-18 (1955).

For Pt I, see Abstr. 9911 (1955). The formula for the Born approximation cross-section for the $\text{Be}^9(p, d)\text{Be}^8$ pickup reaction obtained with the help of the " $\text{Be}^9 + \text{neutron}$ " model of the Be^9 nucleus is compared with the experimental data for 6.5 and 22 MeV protons. The best agreement is obtained for the Be^9 -neutron square well, radius $r_0 = 5 \times 10^{-13}$ cm. The angular distributions for larger angles lie under the experimental curves mostly due to the compound state formation. The absolute values of the cross-section obtained by taking into account the Coulomb correction seem to be great because of the neglect of the Be^9 -proton interaction. Comparison with the results of the Butler approximation determines the limits of validity of this approximation. The same model of the Be^9 nucleus is applied for the calculation of the Born cross-section for the $\text{Be}^9(d, t)\text{Be}^8$ reaction. The results are compared with experiment for 7.7 MeV deuterons.

A.

SAWICKI, J.

P O L .

J Simple model of the lithium-6 nucleus and the $Li^6(n, t)He^4$ reaction. J. Dabrowski and J. Sawicki (Univ. Warsaw). *Phys. Rev.* 97, 1002-3(1955); cf. *C.A.* 48, 13456f.—A model of the Li^6 nucleus which consists of an α -particle plus a deuteron is used to calc. angular distributions of the $Li^6(n, t)He^4$ reaction for several neutron energies under the assumption that it is a pickup process. The shapes of the calc'd. angular distributions are similar to those of the exptl. data; however, there is a lack of agreement between expt. and

theory at large angles.
formation.

✓ Polarization of nucleons from photonuclear reactions.
W. Czyz and J. Sawicki (Jagellonian Univ., Krakow).
Bull. acad. polon. sci. Classe III, 4, 141-5 (1956) (in Eng-
lish).—A method is given for calg. the degree of polariza-
tion of nucleons produced in photonuclear reactions. Cer-
tain applications are suggested. —A. P. Mills

True Sci

Polarization of nucleons from photodisintegration of deuterium. I. Medium energies. W. Czyz and J. Sawicki (Jagellonian Univ., Cracow). *Bull. acad. polon. sci. Classe III*, 4, 515-19 (1956) (in English); cf. C.A. 50, 15275c. — The theoretical polarization of nucleons from the deuteron photoeffect is calcd. — The dipole elec. transitions are considered 1st; 8 types of exchange forces are considered. The angular dependence of the polarization, P , is of the form: $P = (a \sin 2\theta + d \sin \theta) / (b + c \cos 2\theta)$. The value of P_{max} for the 3 types of exchange forces is: -20.5% for sym., -13.9% for charged, and 6.3% for neutral. Corrections arising from the quadrupole transitions are not important. R. Holroyd

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SAWICKI, J.

Distr: 4E3d

Polarization effects in β -decay accompanied by internal bremsstrahlung. J. Sawicki and J. Szymański (Univ. Warsaw). *Bull. acad. polon. sci., Classe III*, 5, 897-903 (1956) (in English).—Theoretical. The method of Cutkosky (C.A. 62, 902e) based on Feynmann technique is used, 2-component neutrino theory being accepted. Circular polarization of the bremsstrahlung γ -rays and the polarization of electrons are calcd. and discussed. J. Stecki

SAWICKI, J.

Note on the nucleon self-action in the classical scalar meson field theory. In English. p. 381. ACTA PHYSICA (Magyar Tudomanyos Akademia) Budapest. Vol. 5, no. 4, 1956.

SOURCE: East European Accessions List (EEal) Library of Congress, Vol. 5, no. 12, December 1956.

SAWICKI, Jerzy

"New Interpretation of Nuclear Models," by Jerzy Sawicki, Instytut Fizyki, PAN,
Warsaw. Postepy Fizyki, Vol. VII, #3, 1956.

Sawicki, J.

539.172.13
18370. . . ANGULAR DISTRIBUTION OF DEUTERONS FROM
Be(p,d)Be. II. (SUPPLEMENT). J. Dabrowski and J. Sawicki.
Acta phys. Polon., Vol. 15, No. 1, 3-4 (1956).
For Pt II see Abstr. 6892/1956. Discusses recent results
of J.B.Reynolds and K.G.Stauding on the 16.5 MeV proton
Be(p,d)Be reaction. A.

LFH

SAWICKI, J

2-2ml

✓ 5617. ¹⁹DISINTEGRATION OF THE ⁹Be NUCLEUS IN COULOMB FIELD. J. Sawicki. 539.172.13 ; 539.172.1
Acta phys. Fyz., Vol. 15, No. 6, 358 (1956).
Erratum to Abstr. 9910 (1955). *W. J. C.*

and y

SAWICKI, J.

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NEUTRON POLARIZATION IN (p,n) REACTIONS AND NUCLEAR OPTICAL MODEL. J. Sawicki (Univ. of Warsaw, Poland). Phys. Rev. 104, 1443-4 (1953) Dec. 1.

The polarization of the neutron produced in a (p,n) reaction is calculated under the assumption of a direct mechanism for the reaction. The "cloudy crystal ball" potential modified by the spin-orbit coupling term is assumed to be the neutron-nucleus interaction. The model is applied to the reaction $Si^{28}(p,n)P^{28}$ for $E_p = 8$ and 8.5 Mev. The maximum negative polarizations $\sim -75\%$ come in for the center-of-mass scattering angle $\theta \sim 75^\circ$. (auth)

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SANICKI, J.

"A few impressions from the visit in the United Institute for Nuclear Research and in Moscow."

p. 166 (Kosmos. Serbia B: Przyroda Nieożywiona) Vol. 3, no. 2, 1957
Warsaw, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

Poland/Physical Chemistry - Atomic Nucleus, B-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 43

Author: Dabrowski, J., and Sawicki

Institution: None

Title: Simple Model of the Li^6 Nucleus and the Neutron-Induced Reactions of Li^6

Original

Periodical: Acta Phys. Polon, 1955, Vol 14, No 4, 323-335 (published in English with a Russian summary)

Abstract: The reactions $\text{Li}^6(n,t)\text{He}^4$ and $\text{Li}^6(n,d)\text{He}$ are discussed with the aid of a simple model of the Li^6 atom in which it is represented as consisting of alpha particles and deuterons. It is supposed that both reactions are of the "fission" type. The correctness of this model is borne out both by energetic relationships and by the fact that the magnetic moment of $\text{Li}^6 \mu \approx$ the magnetic moment of deuterons. The cross sections for both reactions were calculated by the Bornov approximation.

Card 1/1

Category : POLAND/Theoretical Physics - Quantum Field Theory

B-6

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 219

Author : Plebanski, J., and Sawicki, J.

Inst : Univ. of Warsaw; Inst. Phys. Polish Acad. of Sciences

Title : Remarks on the Relativistic Two-Body Problem in the Classical Scalar Meson Field Theory.

Orig Pub : Acta phys. polon., 1955, 14, No 6, 455-470

Abstract : The circular motion of two particles interacting through a scalar meson field and the linear motion of a single particle in an external scalar field produced by the second particle are examined without quantization. It is shown that repulsion forces occur at small distances. It is shown that neglecting the damping leads to certain physical contradictions.

Card : 1/1

SAWICKI, J. and CZYZ, W.: "Note on the (γ , d) Reactions: An Addendum,"
Nuclear Physics, Vol. 4, No. 5, (Amsterdam), November 1957, p. 695.
Published from the Institute of Nuclear Research, Warsaw. Received
by editor, 30 October 1957.

✓ 9385. POLARIZATION OF NUCLEONS FROM THE BREAK-UP
OF THE DEUTERON IN THE ELECTROMAGNETIC FIELD OF A
NUCLEUS. J. Savič ¹⁷

Bull. Acad. Polon. Sci. Cl. 3, Vol. 5, No. 3, 283-9 (1957).

Calculations have been made on the magnetic disintegration of
a fast deuteron by the electromagnetic field of a nucleus. The re-
lative importance of the magnetic disintegration increases with
deuteron energy and it is suggested that relatively weak magnetic
fields appear more distinctly by way of interference with the elec-
tric field in the polarization of the outgoing protons. Calculations
have been made of this polarization.

L. I. Orson

RMP

amb

GR

Category : HUNGARY/Theoretical Physics - Quantum Field Theory

B-6

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 220

Author : Sawicki, J.

Inst : Univ. of Warsaw, Poland

Title : Note on the Nucleon Self-Action in the Classical Scalar Meson Field Theory.

Orig Pub : Acta phys. Acad. sci. hung., 1956, 5, No 5, 381-389

Abstract : The self-action forces of the nucleon are calculated in the classical scalar theory for the case of uniform nucleon motion along a circle, for fields that are symmetrical and that are delayed in time. The question of the role of self-action in the two-body theory is considered.

Card : 1/1

✓ 5621

POLARIZATION OF NUCLEONS FROM PHOTODISINTEGRATION OF DEUTERIUM. W. Czyz (Jagellonian Univ., Krakow, Poland) and J. Sawicki (Univ. of Warsaw, Poland). Nuovo cimento (10) 5, 45-55 (1957) Jan.

The polarization of nucleons from the $D(\gamma, n)$ reaction is investigated under the assumption of tensor coupling in the $n-p$ interaction potential. Dipole electric and dipole magnetic transitions are taken into consideration. The polarization is estimated for $\hbar\omega = 40$ Mev with the help of recent $p-p$ scattering phase shifts. For sake of illustration the polarization is given for the very singular $L=8$ case and Pauli force in Born approximation and for the weak tensor forces of Barita and Schwinger. The polarization is sensitive to the type of interaction. The general scheme of calculation of the reaction amplitude for tensor forces is given. The quadrupole electric corrections to the polarization are discussed. (auth)

2

Distr: 4E3c/4E3d

19
/ Nucleon-surface interaction and the (p,n) reactions.
J. Sawicki and Z. Szymanski (Polish Acad. Sci., Warsaw).
Nucleon-surface [10], 5, 1777-81 (1967) (in English); cf. C.A.
50, 16144d.—Theoretical. The contribution of the interac-
tions of the reacting nucleons with the surface of the core
in (p,n) reactions is calcd. In $Si^{28}(p,n)P^{28}$, the relative
contribution of this effect to ΔV for $\theta = 0$ amounts to 12%.
G. L. Cunningham

Rmk

POLAND/Nuclear Physics - Nuclear Reactions

C-5

Abs Jour : Ref Zhur - Fizika, No 6, 1958, No 12725

Author : Sawicki J.

Inst : University of Warsaw, Poland

Title : Neutron Polarization and Angular Distributions in (p,n)
Reactions and Nuclear Optical Model.

Orig Pub : Acta phys. polon, 1957, 16, No 1-2, 93-117

Abstract : The polarization and angular distribution of neutrons in the (p,n) reaction are calculated on the basis of the mechanism of direct interaction. It has been assumed that the neutron moves in a complex potential with a spin-orbit interaction. It is shown, with the Si²⁹ (p,n)P²⁹ reaction as an example, that for a more or less unique comparison of the theory with experiment it is necessary to take into account the distortion of the incident wave by the Coulomb field of the nucleus, at least for proton energies lower than or approximately equal to 6 Mev. The work contains a brief survey of various types of direct interactions. Bibliography, 50 titles.

Card : 1/1

16

SAWICKI, J.

J. SAWICKI: "Deuteron Stripping on Spheroidal Nuclei," Nuclear Physics,
Vol. 6, No. 4, April 1958, p. 575. Received 15 December 1957.

Author is affiliated with the Institute of Theoretical Physics, Warsaw
University, at the time of writing his address was: Palmer Physical
Laboratory, Princeton University.

4
2

Distr: 4E3d/4E3c

✓ Inelastic scattering of deuterons from spherical nuclei.
J. Sawicki (Inst. Nuclear Research, Warsaw). *Nuclear*
Phys. 6, 613-17(1958).—A direct interaction theory of
✓ (d,d') reactions is proposed for strongly deformed nuclei of
mass no. $A \approx 24$. The theory is applied to the Mg^{24}
✓ $(d,d')Mg^{24}$ (1.87-m.e.v.) reaction. N. R. Fickering

"Shape Effects in Deuteron Stripping on Spheroidal Nuclei," by J. Sawicki, Palmer Physical Laboratory, Princeton Univ.*; and G. M. Satchler, Clarendon Laboratory, Oxford. Nuclear Physics, Vol. 7, No. 3, Jun 58, pp 289-95. Received 4 Apr 58.

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